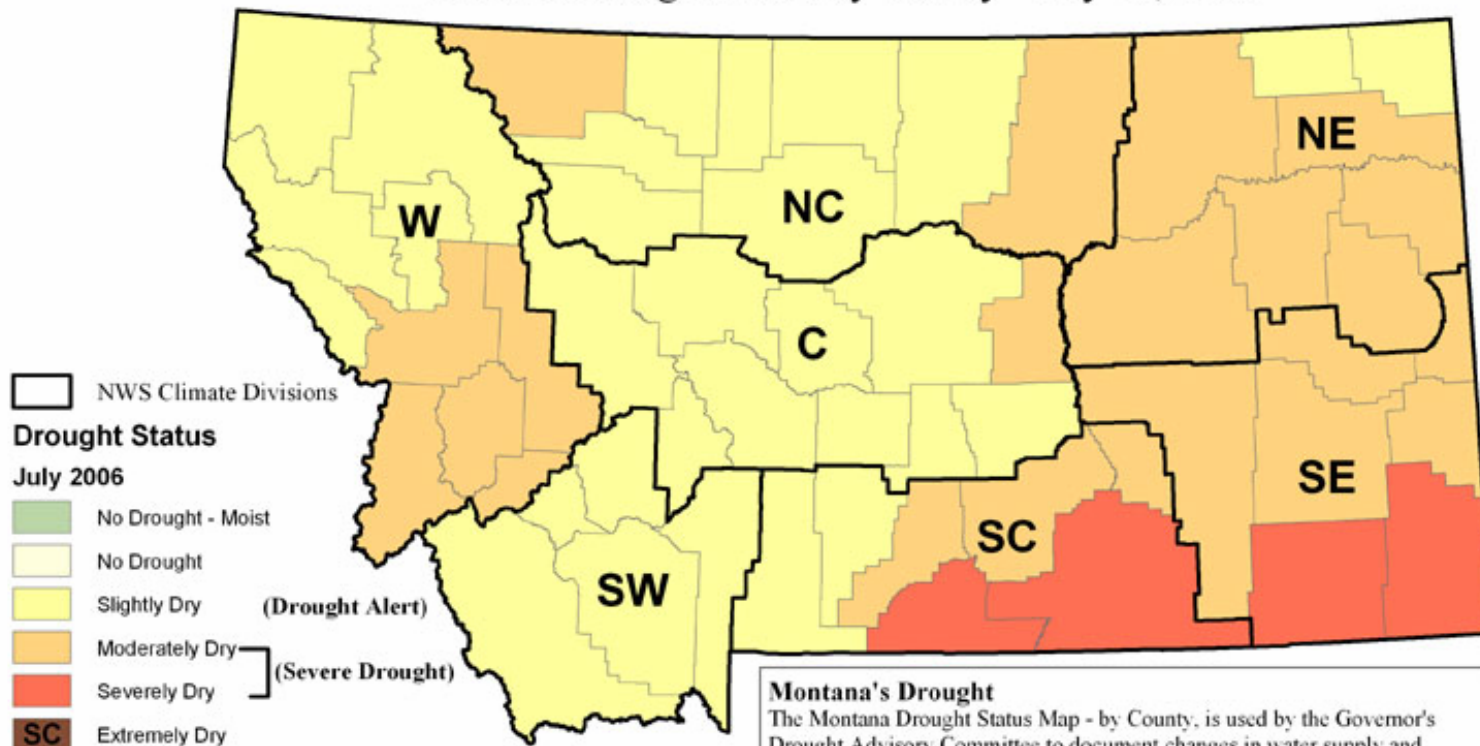


Montana Drought Status - July

Montana Drought Status by County - July 27, 2006



Drought Alert - Governor's Drought Advisory Committee strongly encourages local officials to convene local drought committees.

Severe Drought - Local officials should have local drought planning efforts underway or should reconvene the local drought committee at the earliest opportunity.

For recommended responses, see the Drought Response Plan.



<http://nr.is.state.mt.us/drought/>

Montana's Drought

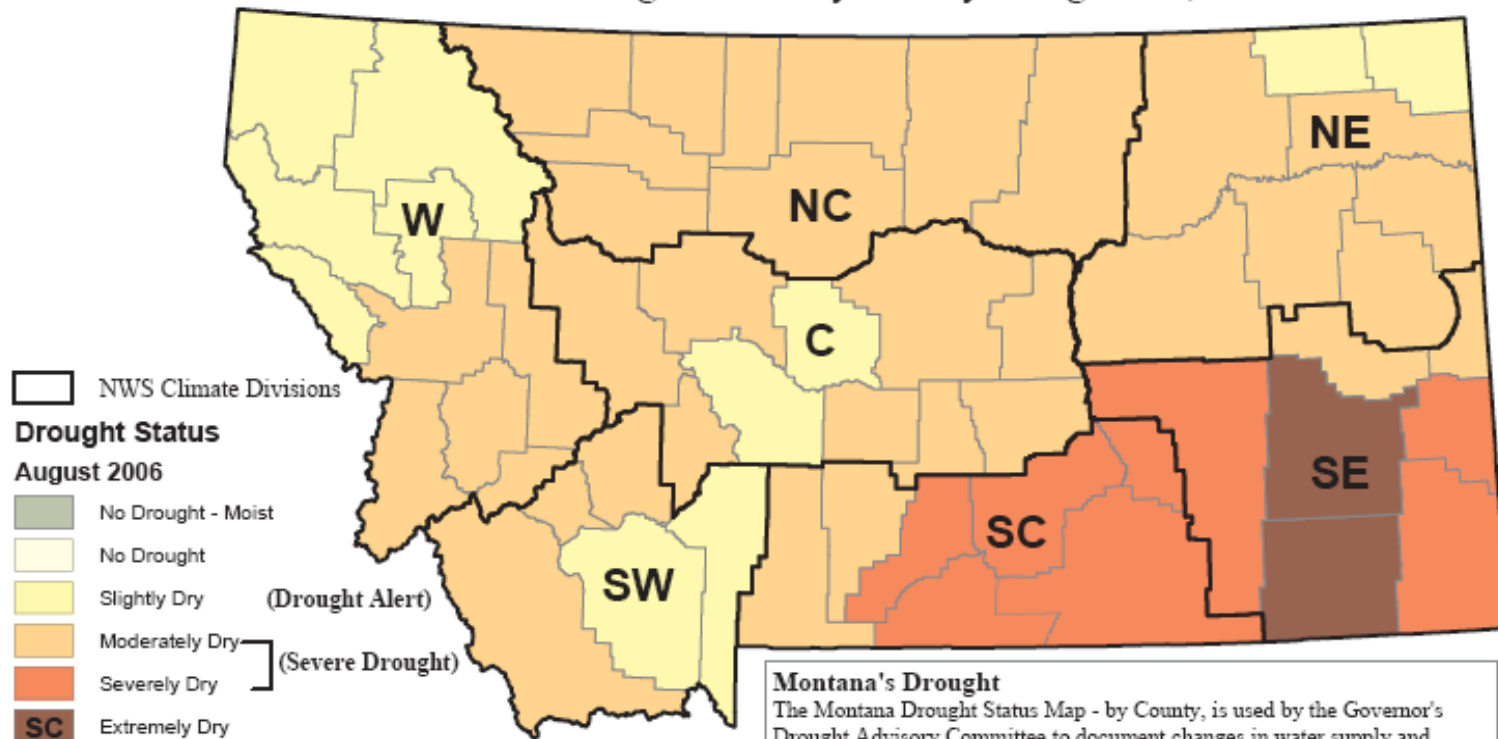
The Montana Drought Status Map - by County, is used by the Governor's Drought Advisory Committee to document changes in water supply and moisture conditions on a monthly basis and to alert counties so timely responses are possible. The descriptive categories of the Drought Status map correspond with known and anticipated levels of economic hardship on water uses and moisture dependence due to drought. Recovery from up to six consecutive years of severe drought conditions continues across large areas of Montana. High temperatures, declining streamflow, and wildfire are common in any given summer in Montana and do not necessarily indicate the presence of drought.

For more information regarding the determination of the drought status or the activities of the Drought Advisory Committee visit:

<http://www.dnrc.state.mt.us/Drought/Index.html>

Montana Drought Status - August

Montana Drought Status by County - August 17, 2006



Drought Alert - Governor's Drought Advisory Committee strongly encourages local officials to convene local drought committees.

Severe Drought - Local officials should have local drought planning efforts underway or should reconvene the local drought committee at the earliest opportunity.

For recommended responses, see the Drought Response Plan.



<http://nr.is.state.mt.us/drought/>

Montana's Drought

The Montana Drought Status Map - by County, is used by the Governor's Drought Advisory Committee to document changes in water supply and moisture conditions on a monthly basis and to alert counties so timely responses are possible. The descriptive categories of the Drought Status map correspond with known and anticipated levels of economic hardship on water uses and moisture dependence due to drought. Recovery from up to six consecutive years of severe drought conditions continues across large areas of Montana. High temperatures, declining streamflow, and wildfire are common in any given summer in Montana and do not necessarily indicate the presence of drought.

For more information regarding the determination of the drought status or the activities of the Drought Advisory Committee visit:

<http://www.dnrc.state.mt.us/Drought/Index.html>



Governor's Drought Advisory Committee Meeting

August 17, 2006

National Weather Service

Gina Loss

July 2006

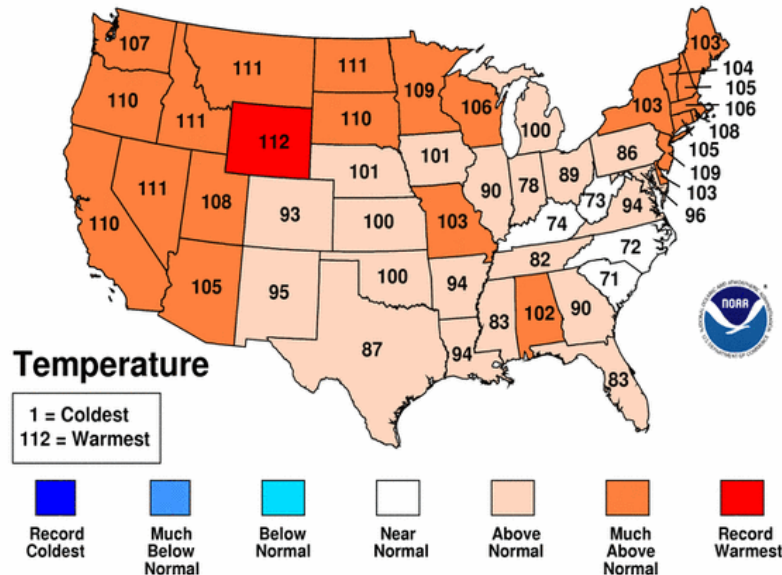
Hot and dry!

5th warmest since 1866

- 71.1°F – 2006
- 71.3°F – 2003
- 72.7°F – 1874
- 73.1°F – 1886
- 74.7°F – 1936

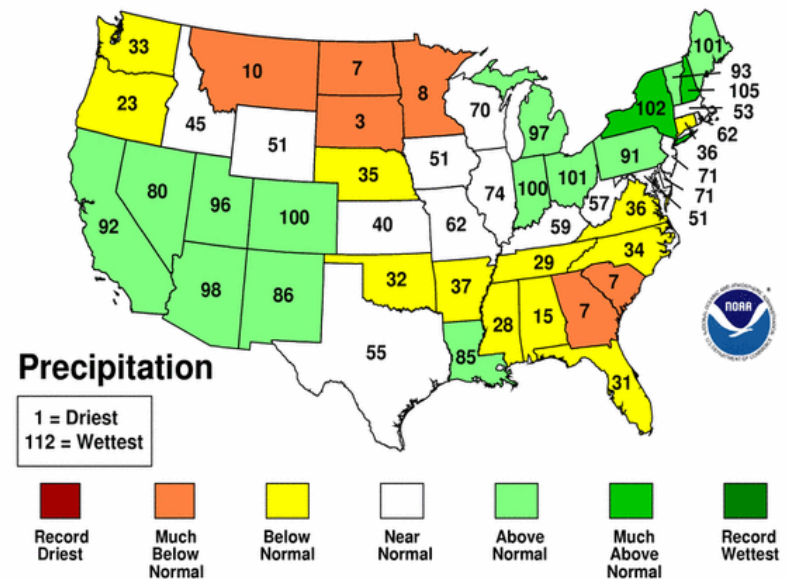
July 2006 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



July 2006 Statewide Ranks

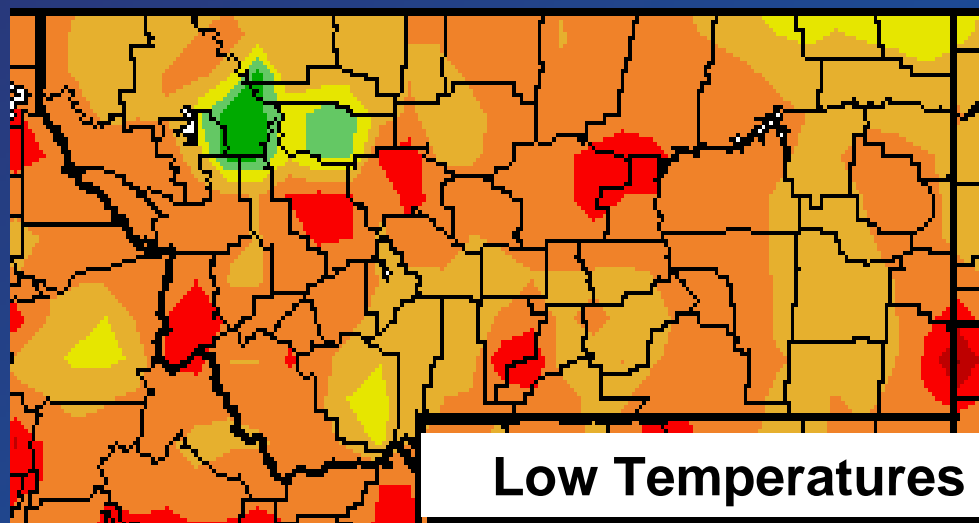
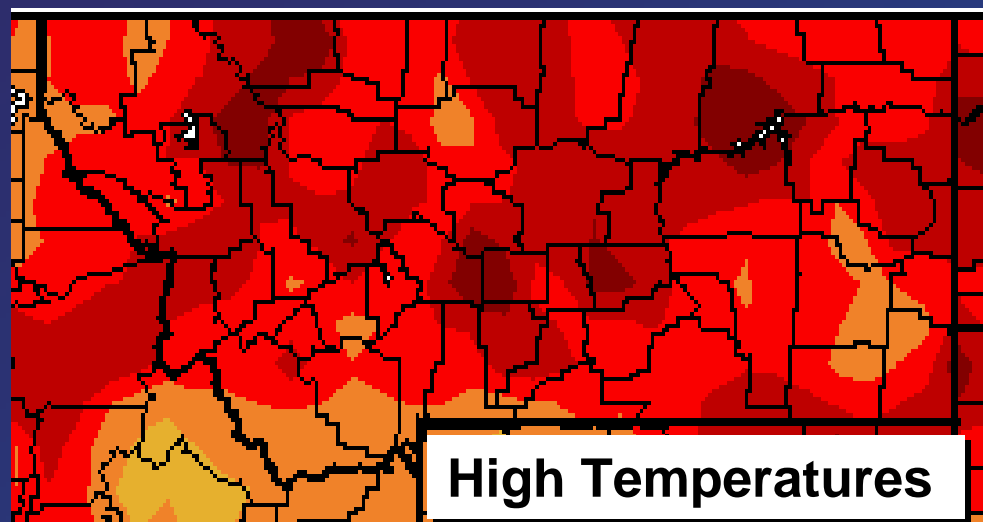
National Climatic Data Center/NESDIS/NOAA



July 2006 was the and 10th driest of 112 years

July Temperature Anomalies

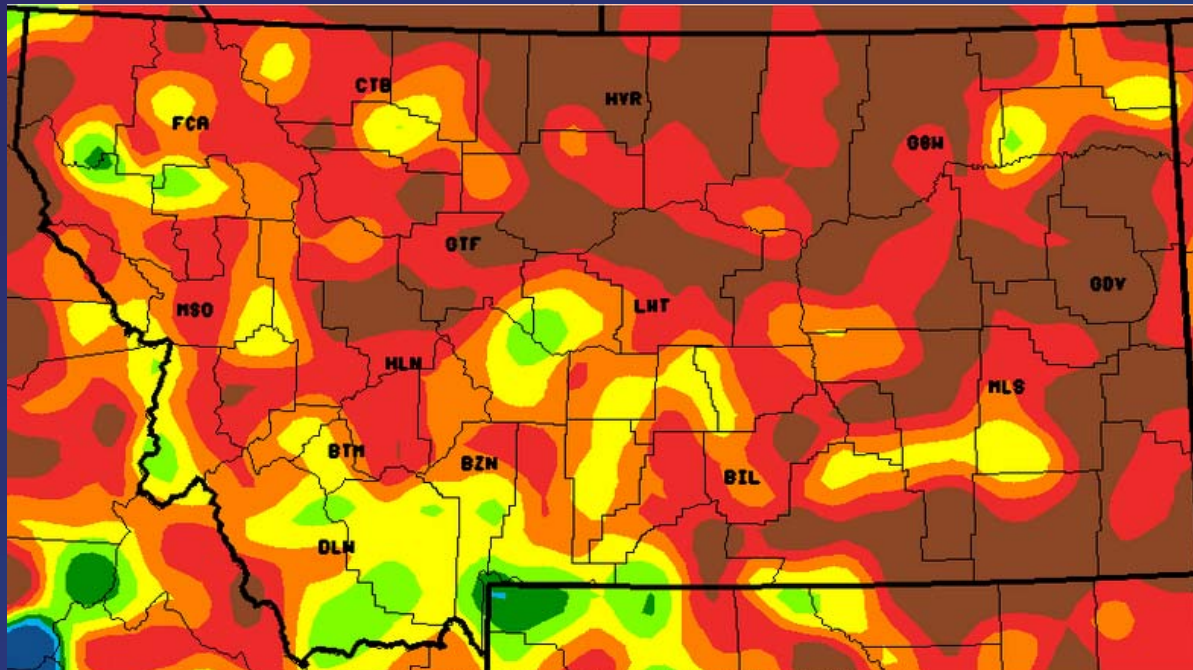
June 28 – July 27, 2006



- All of Montana above average
- Highs
 - At least 4 to 8 degrees above normal
 - Large areas 8 to 12 degrees above normal
- Lows
 - Mostly 2 to 6 degrees above normal
 - Isolated areas 6 to 8 degrees above normal
 - Isolated areas 0 to 4 degrees below normal



Percent of Normal Precipitation July 2006



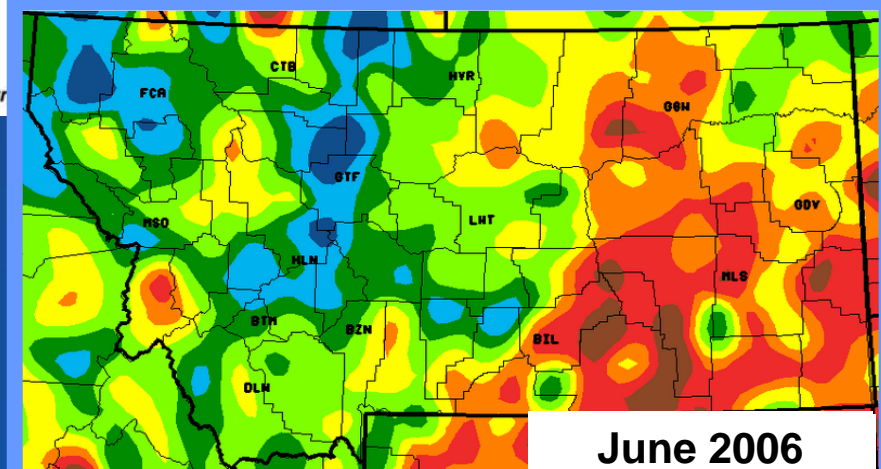
July 2006 Percent of Normal Precipitation
Period of Normal: 1971-2000

20 40 60 85 115 150 200

NOTE: Data used to generate this image are
PROVISIONAL AND SUBJECT TO CHANGE.

<http://www.wr>

- Virtually all of Montana well below average
- Large areas at less than 20% of average
 - North
 - Central
 - East
 - Southeast
- Only isolated areas near normal
 - West
 - Southwest

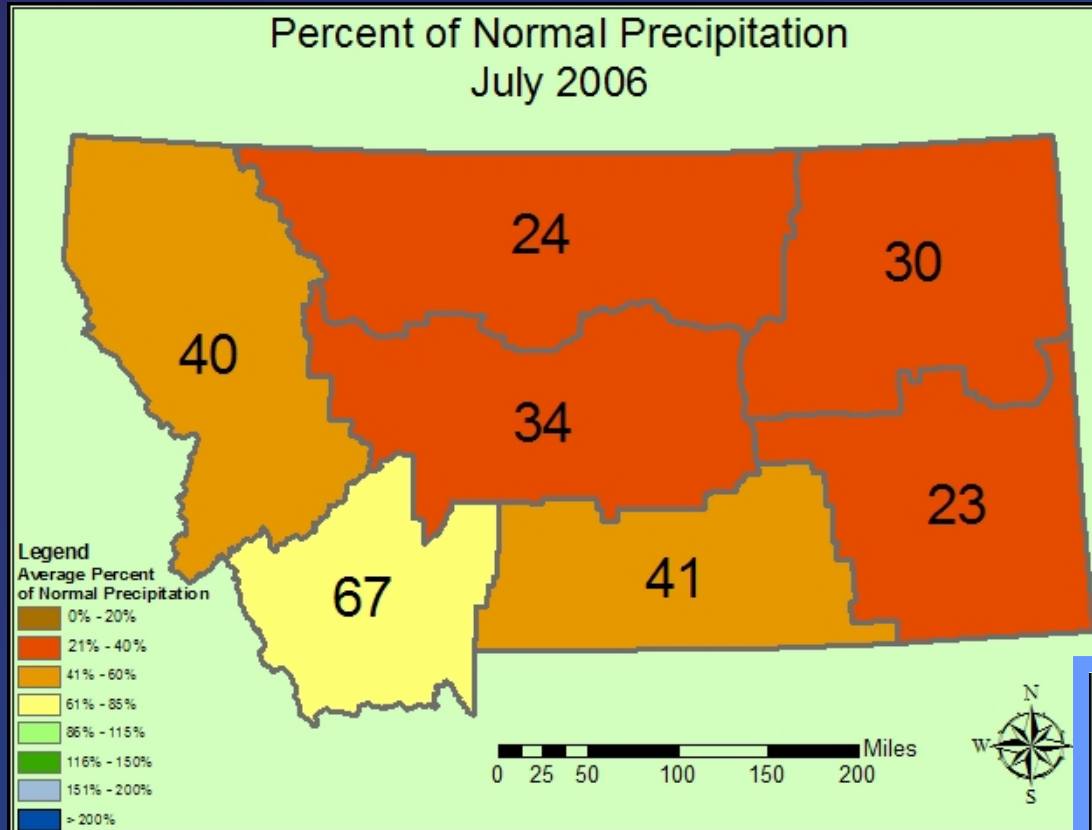


June 2006

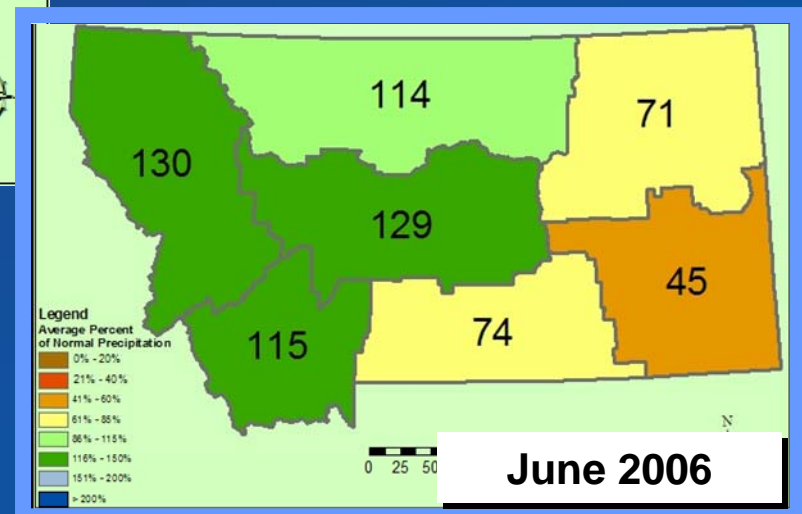


Percent of Normal Precipitation

By Climate Division ~ July 2006

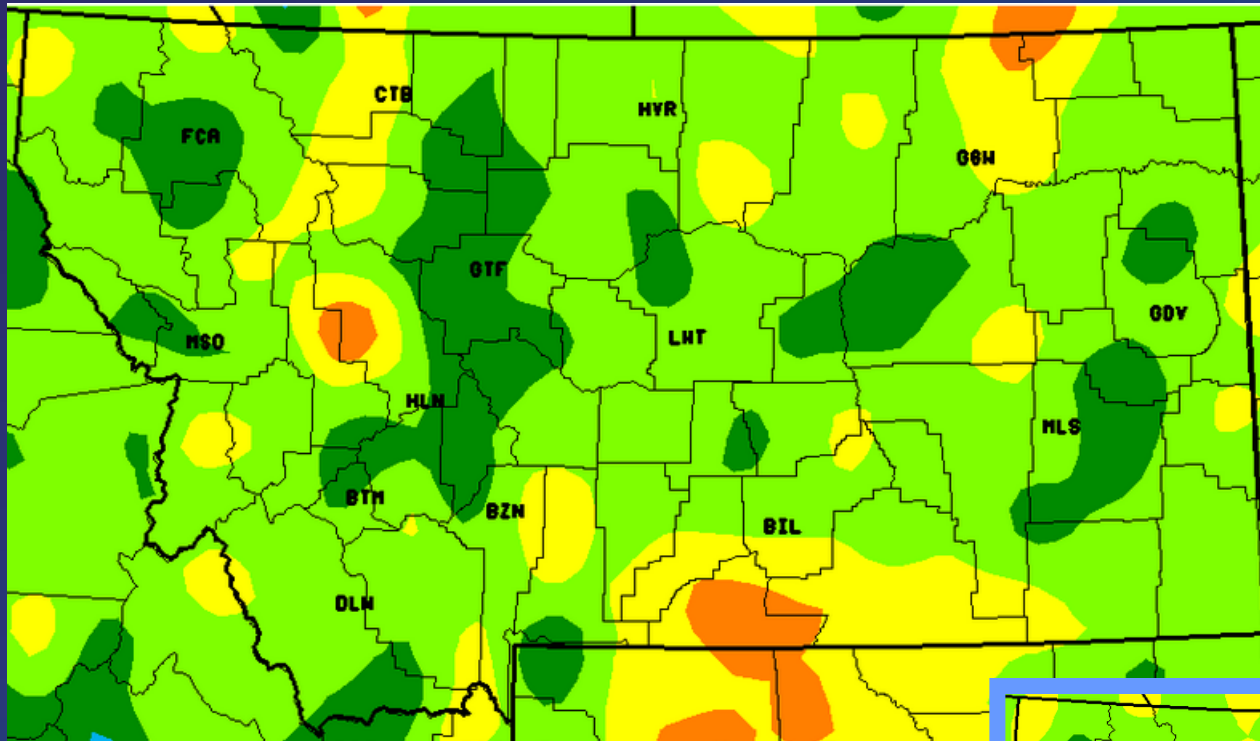


- All climate divisions below normal
- Six divisions well below normal
 - West
 - North central
 - Central
 - Northeast
 - Southeast
 - South central
- One division below normal
 - Southwest





Percent of Normal Precipitation Water Year 2006



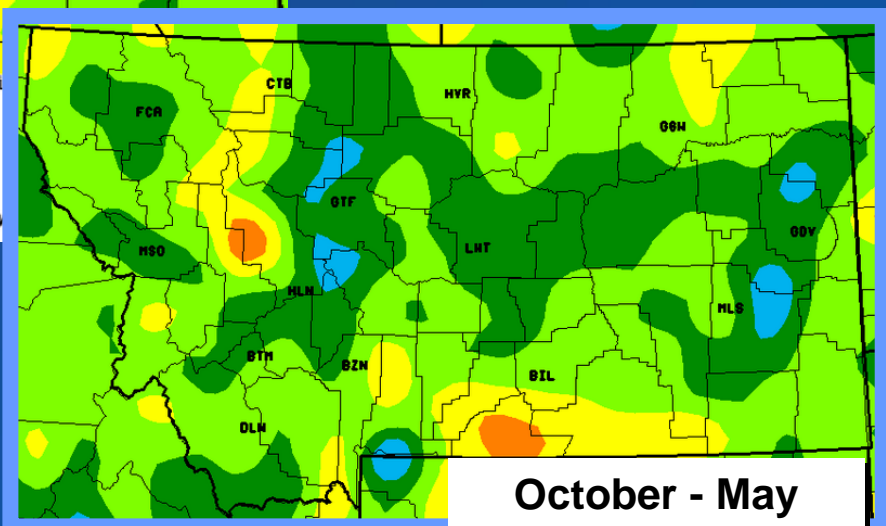
Oct 2005-Jul 2006 Percent of Normal Precipitation
Period of Normal: 1971-2000

20 40 60 85 115 150 200

NOTE: Data used to generate this image are
PROVISIONAL AND SUBJECT TO CHANGE.

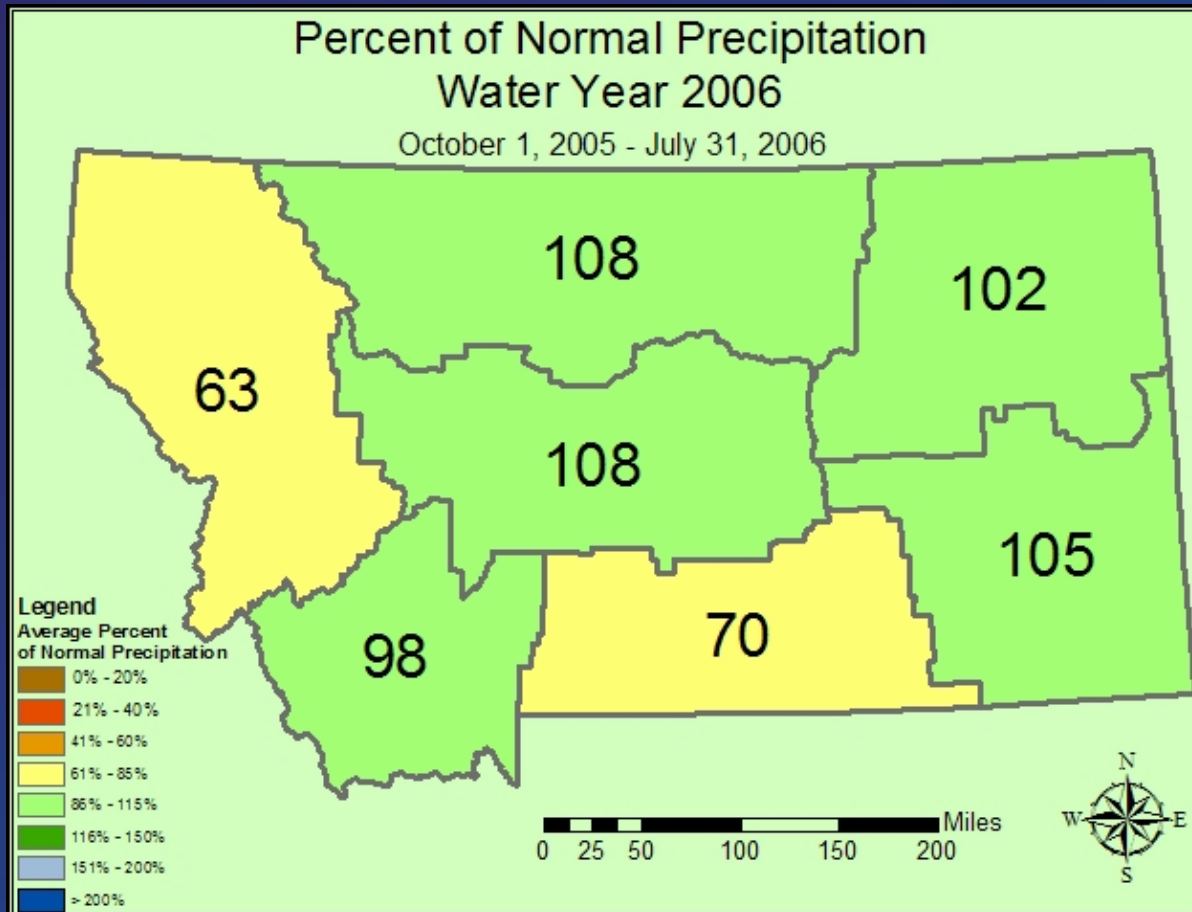
<http://www>

- October – July
- Most of Montana still at least near normal
 - Now only pockets above to well above normal
- Areas below normal slowly expanding

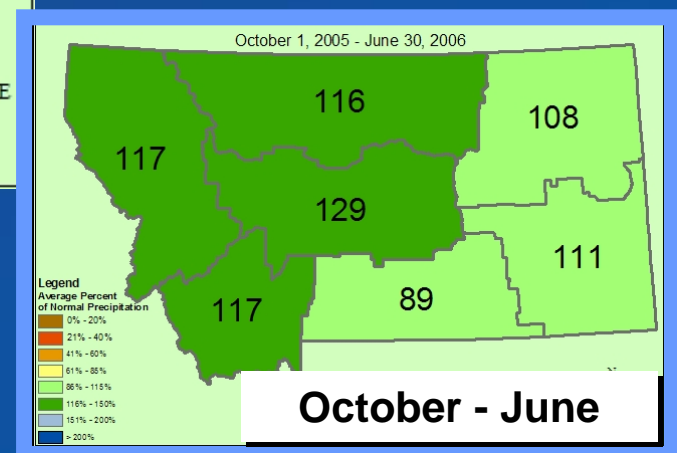




Percent of Normal Precipitation By Climate Division ~ Water Year 2006

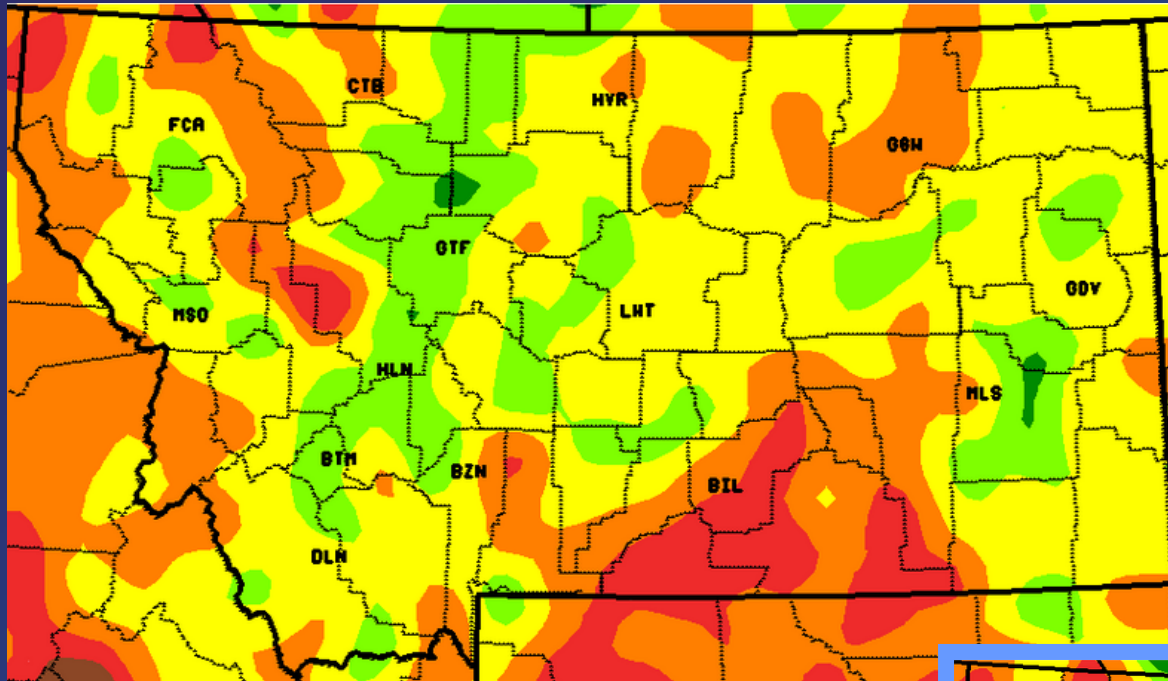


- October – July
- Two divisions have slipped to 'below normal'
 - West
 - South central
- Three divisions slipped from 'above normal' to 'normal'
 - North central
 - Central
 - Southwest



Percent of Normal Precipitation

Crop Year 2006



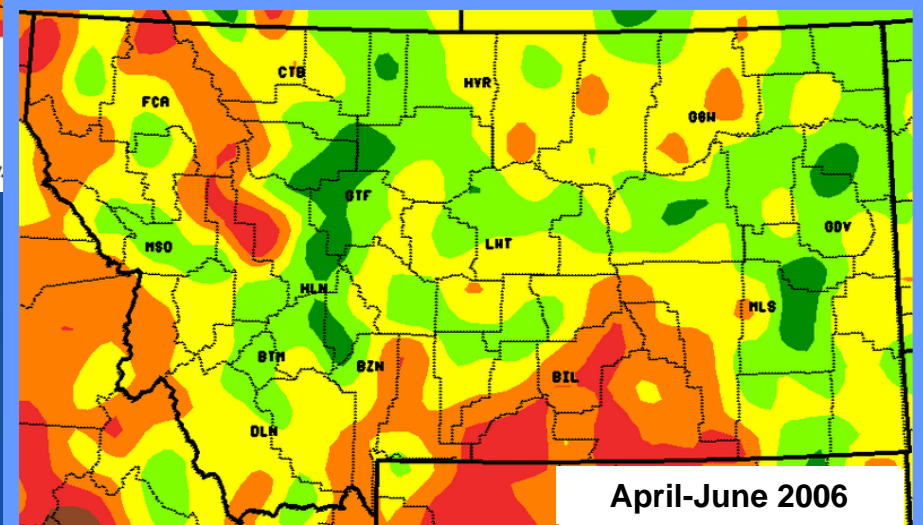
Apr-Jul 2006 Percent of Normal Precipitation
Period of Normal: 1971-2000

20 40 60 85 115 150 200

NOTE: Data used to generate this image are
PROVISIONAL AND SUBJECT TO CHANGE.

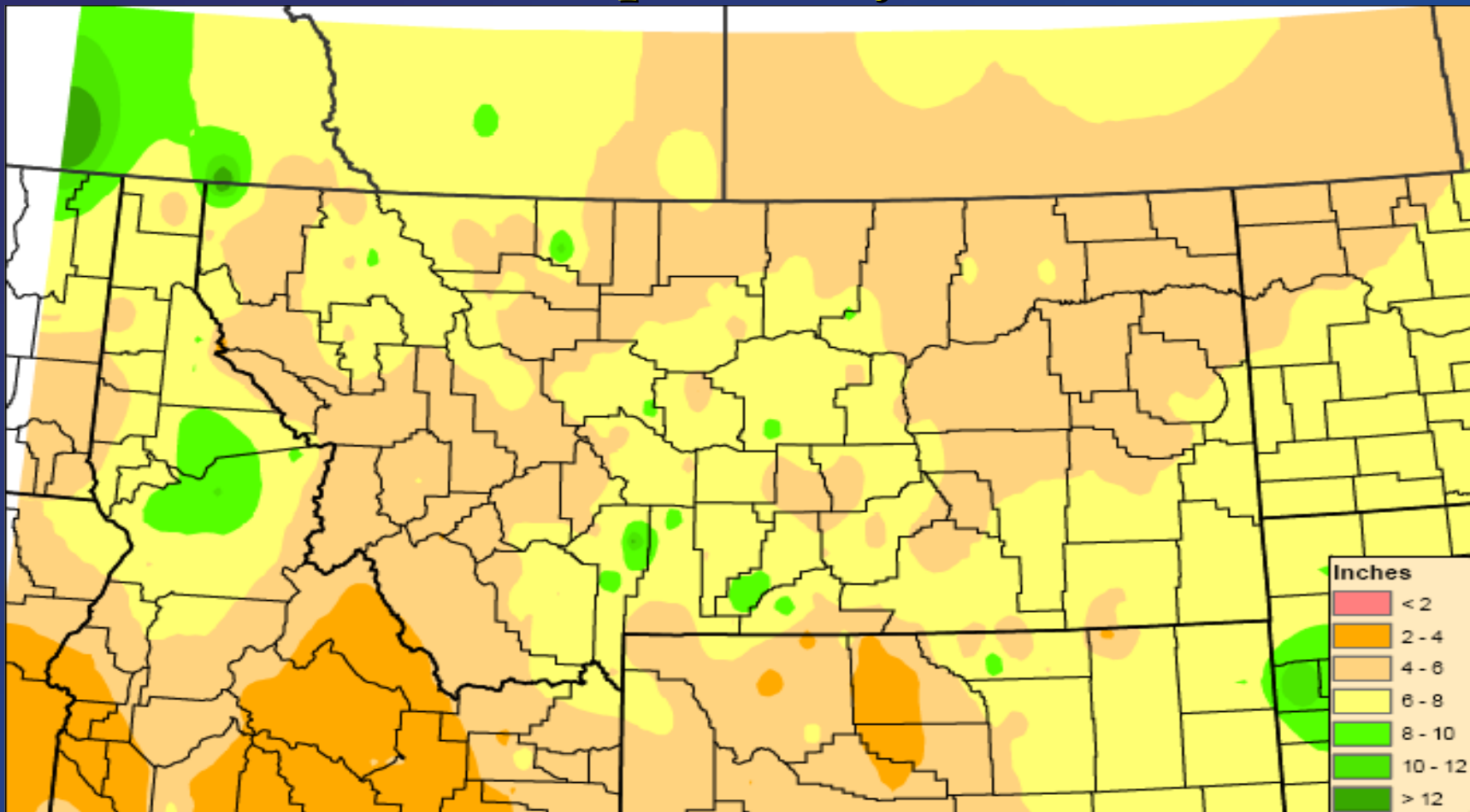
<http://www.>

- April – July
- Most of Montana below to well below average
 - Areas along divide and south central less than 40% of normal
- Only isolated areas above normal



April-June 2006

Crop Year Average Precipitation April – July

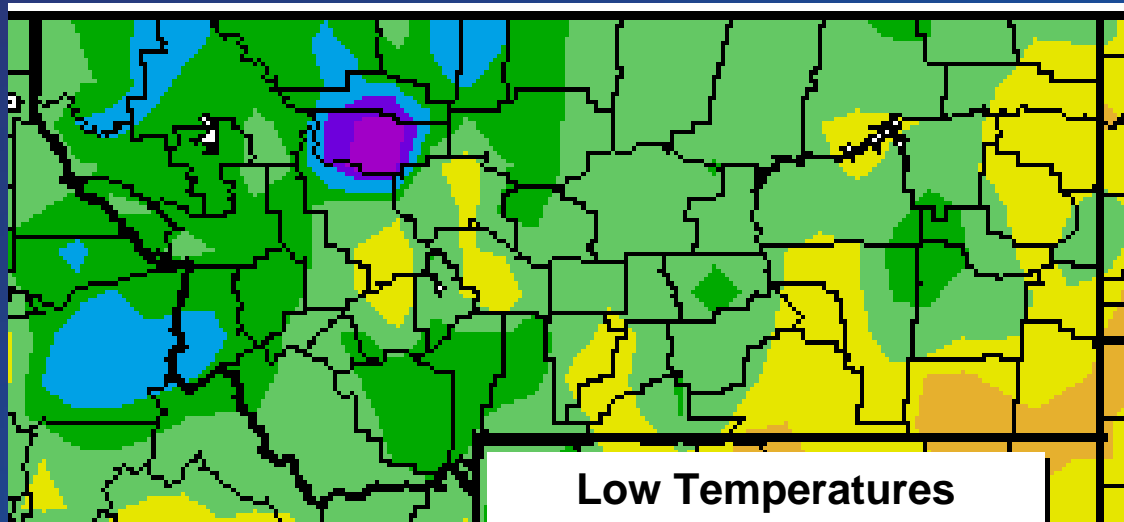
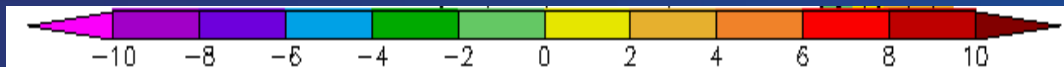
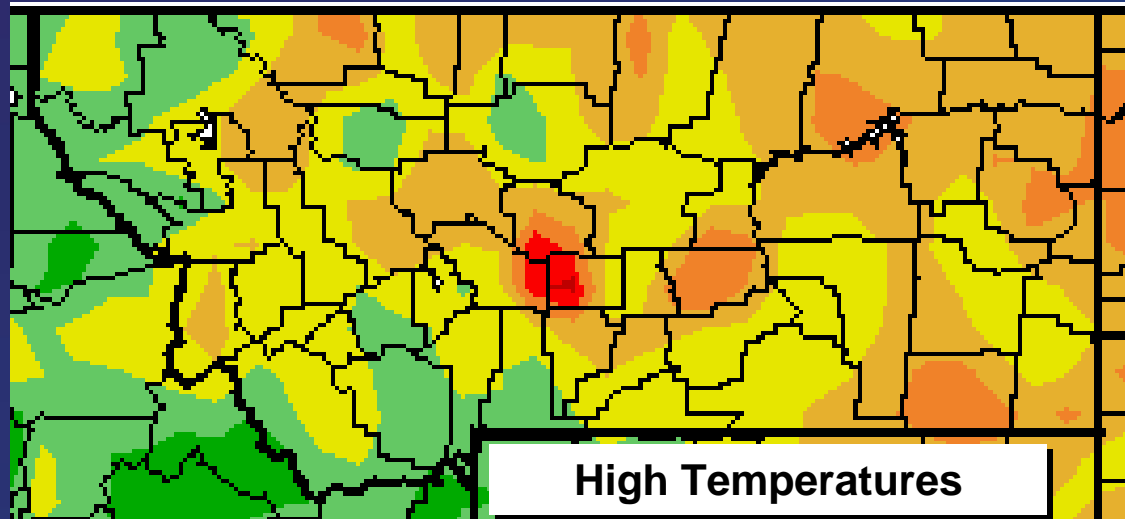


- 💧 Virtually all of Montana receives less than 8 inches of precipitation during the April – July period
- 💧 A large portion of the state receives less than 6 inches



Departure from Average Temperature

August 1 – 15



- Temperatures overall below normal west... above normal east

• Highs

- 2 to 6 degrees above normal north... central and east
- Isolated areas 6 to 8 degrees above normal

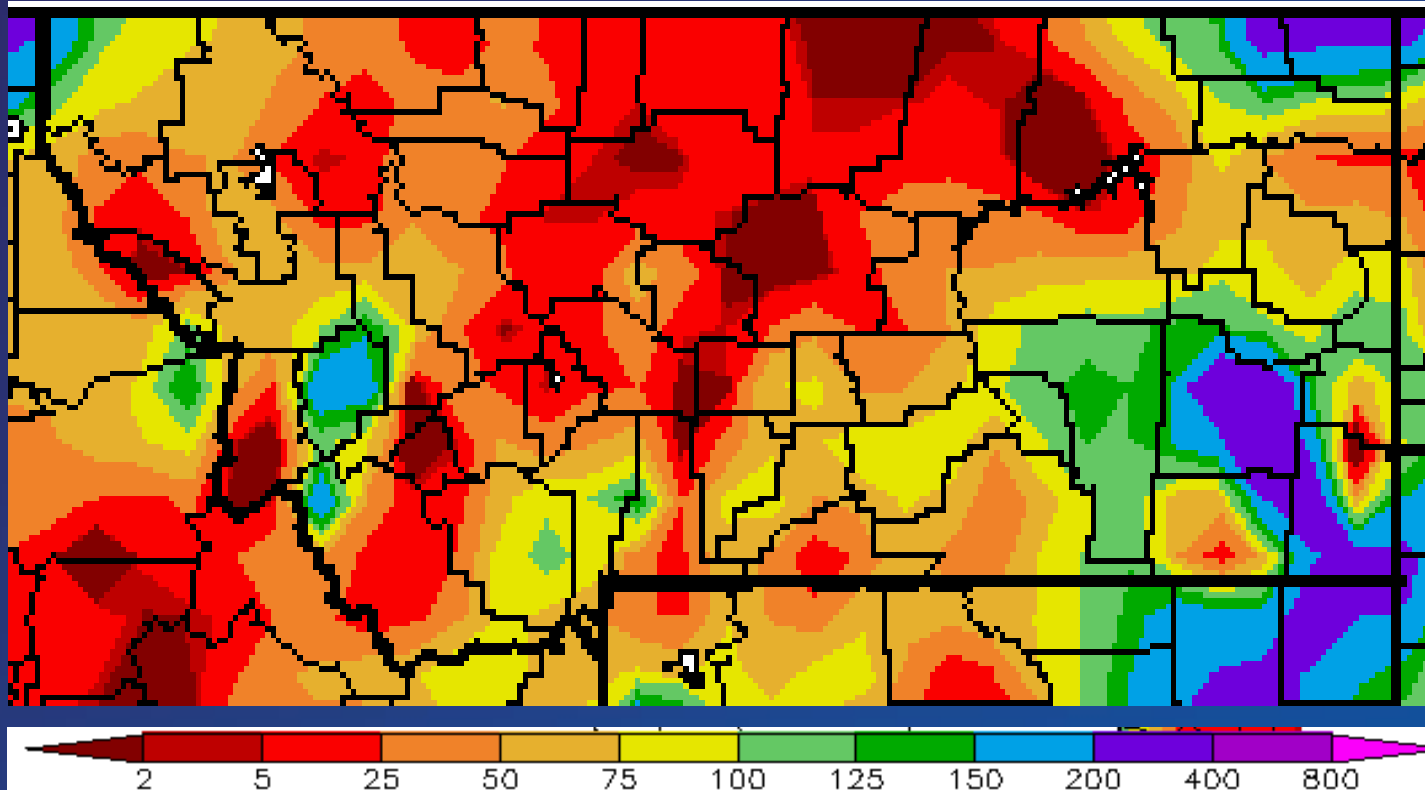
• Lows

- Mostly near normal
- Western half 2 to 6 degrees below normal



Percent of Average Precipitation

August 1 - 15, 2006



- 💧 Most of Montana below normal
 - *Most of the state less than 50% of normal*
- 💧 Areas well above normal in northeast and southeast
 - *Some areas received more than 200% of normal*



Precipitation Totals

August and Water Year 2006

	AUGUST 1 - 15				WATER YEAR TO DATE			
	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML
WESTERN MONTANA								
BUTTE	0.03	0.69	-0.66	4	11.97	11.02	0.95	109
KALISPELL	0.23	0.60	-0.37	38	16.08	15.36	0.72	105
MISSOULA	0.28	0.46	-0.18	61	14.46	10.38	4.08	139
MULLAN PASS	0.21	0.40	-0.19	52	43.63	42.99	0.64	101
SOUTHWEST MONTANA								
BIG SKY	0.55	0.67	-0.12	82	21.43	17.70	3.73	121
BOULDER	0.31	0.75	-0.44	41	10.81	9.77	1.04	111
BELGRADE FIELD	0.24	0.49	-0.25	49	12.48	12.63	-0.15	99
BOZEMAN MSU	1.18	0.65	0.53	182	19.21	16.66	2.55	115
DILLON AIRPORT	0.09	0.45	-0.36	20	8.23	8.34	-0.11	99
ENNIS	0.60	0.62	-0.02	97	11.76	11.65	0.11	101
HELENA	0.00	0.61	-0.61	0	11.20	9.50	1.70	118
ROGERS PASS 9 NNE	0.39	0.86	-0.47	45	13.32	15.20	-1.88	88
TOWNSEND	0.07	0.66	-0.59	11	10.77	9.01	1.76	120
W YELLOWSTONE	0.28	0.67	-0.39	42	19.63	19.58	0.05	100



Precipitation Totals

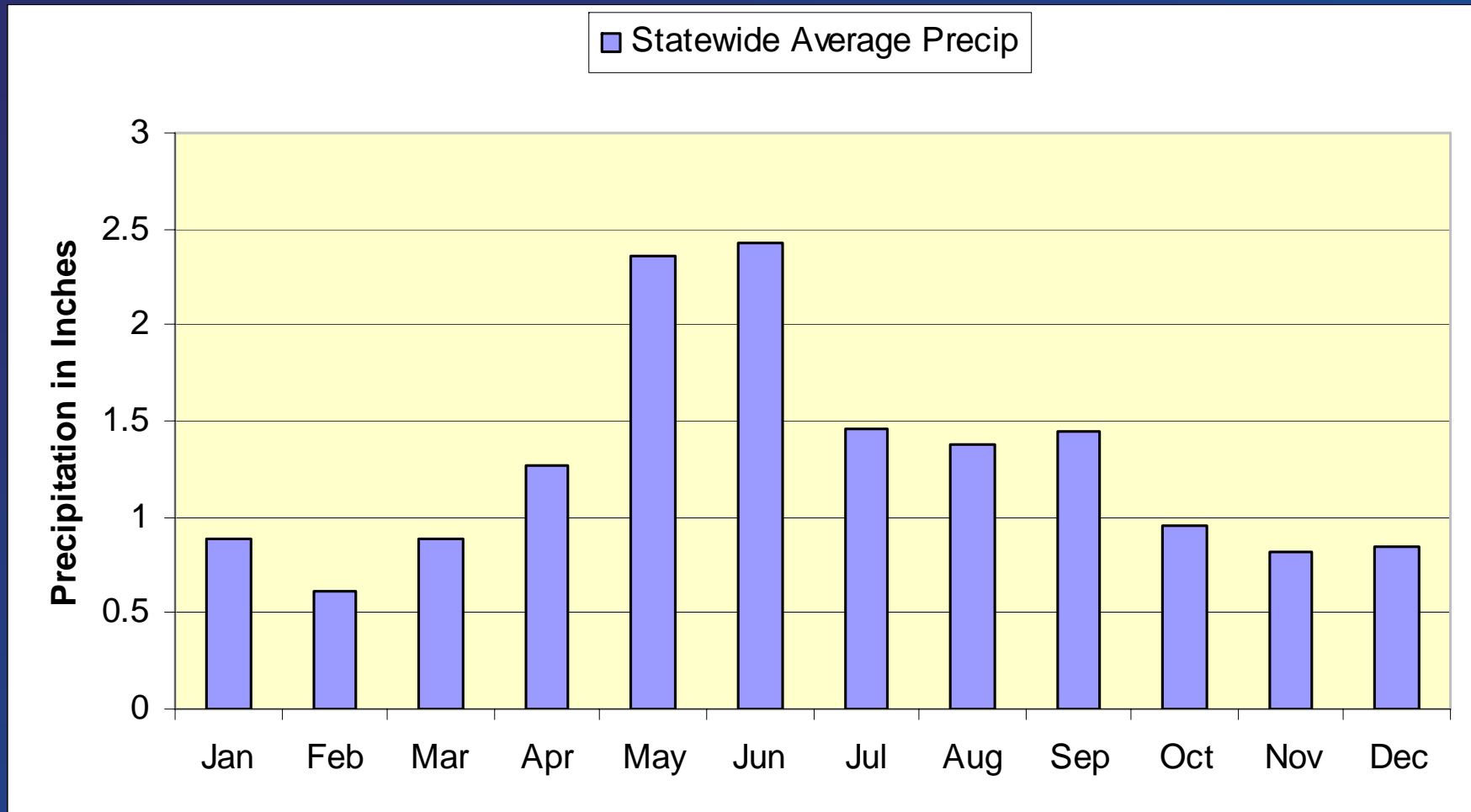
August and Water Year 2006

	AUGUST 1 - 15				WATER YEAR TO DATE			
	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML	ACTUAL PCPN	NRML PCPN	+/- NRML	% OF NRML
CENTRAL MONTANA								
BILLINGS	0.41	0.38	0.03	108	10.53	12.91	-2.38	82
CASCADE 20 SSE	0.07	0.64	-0.57	11	13.61	12.16	1.45	112
CHINOOK	0.00	0.61	-0.61	0	9.02	10.90	-1.88	83
CHOTEAU	0.17	0.65	-0.48	26	10.34	8.89	1.45	116
FORT ASSINNIBOINE	0.14	0.69	-0.55	20	7.90	11.15	-3.25	71
FORT BENTON	0.03	0.72	-0.69	4	12.01	11.66	0.35	103
GOLD BUTTE 7 N	0.17	0.80	-0.63	21	10.82	11.27	-0.45	96
GRASS RANGE	0.10	0.79	-0.69	13	14.74	14.44	0.30	102
GREAT FALLS	0.04	0.77	-0.73	5	15.55	12.84	2.71	121
HARLEM	0.00	0.50	-0.50	0	11.04	9.66	1.38	114
HAVRE	0.10	0.60	-0.50	17	7.48	9.83	-2.35	76
LIVINGSTON	0.11	0.60	-0.49	18	11.92	13.48	-1.56	88
LEWISTOWN	0.04	0.93	-0.89	4	15.06	15.51	-0.45	97
MARTINSDALE 3 NNW	0.00	0.76	-0.76	0	11.14	11.58	-0.44	96
NEIHART 8 NNW	0.60	1.02	-0.42	59	16.57	18.32	-1.75	90
SHELBY	0.07	0.45	-0.38	16	7.71	8.01	-0.30	96
STANFORD	0.09	0.90	-0.81	10	13.56	14.71	-1.15	92
SWEET GRASS	0.26	0.92	-0.66	28	11.03	12.18	-1.15	91
VALIER	0.42	0.75	-0.33	56	10.87	10.26	0.61	106
WHITE SULPHUR SPRGS	0.14	0.59	-0.45	24	11.74	11.38	0.36	103
EASTERN MONTANA								
GLASGOW	0.04	0.62	-0.58	6	7.34	9.64	-2.30	76
MILES CITY	0.70	0.60	0.10	117	11.05	11.71	-0.66	94
WILLISTON	0.35	0.79	-0.44	44	10.57	12.12	-1.55	87



Statewide Average Precipitation

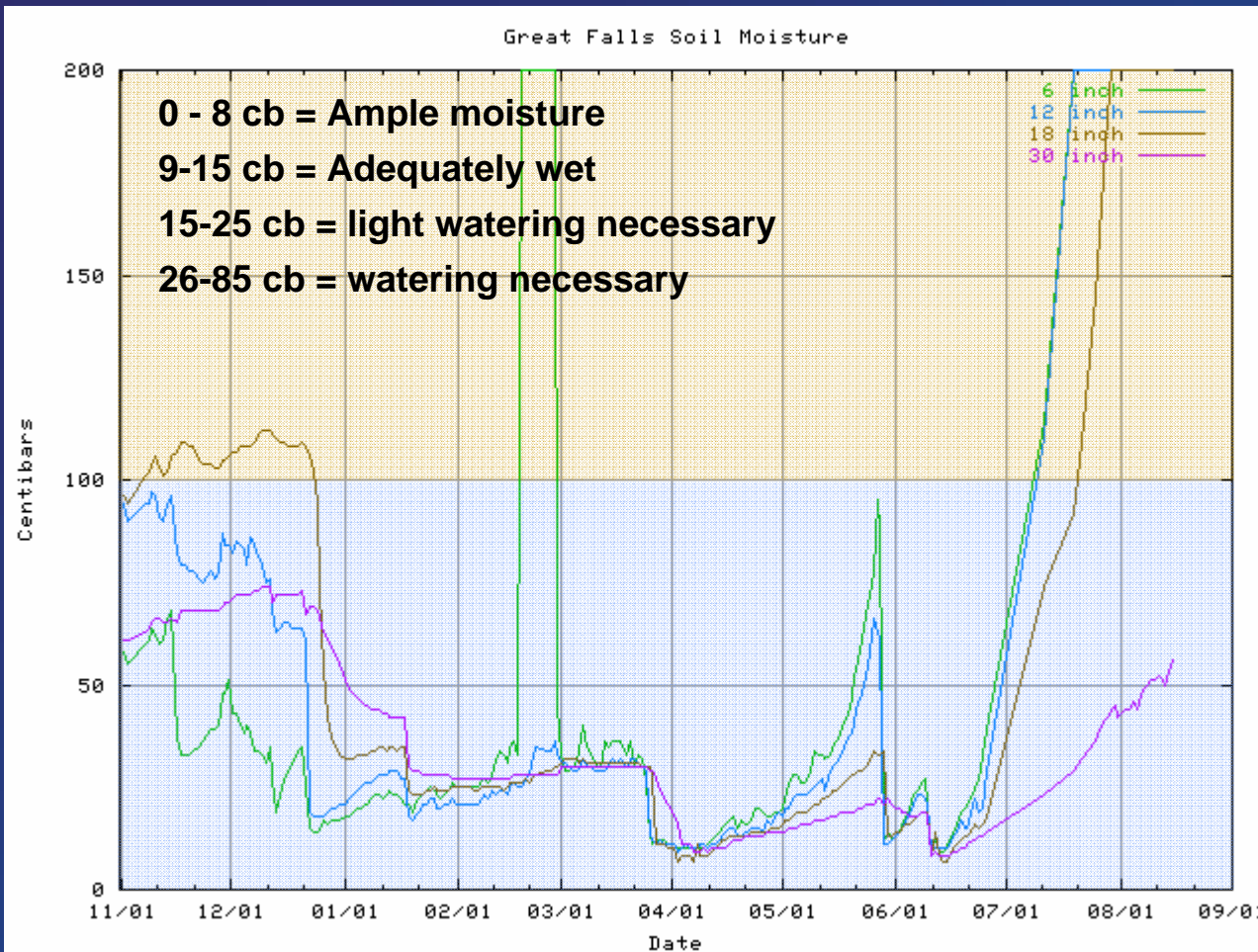
August begins transition from convective to stratiform precipitation





Great Falls Soil Moisture

Dry... Dry... Dry... Drying.



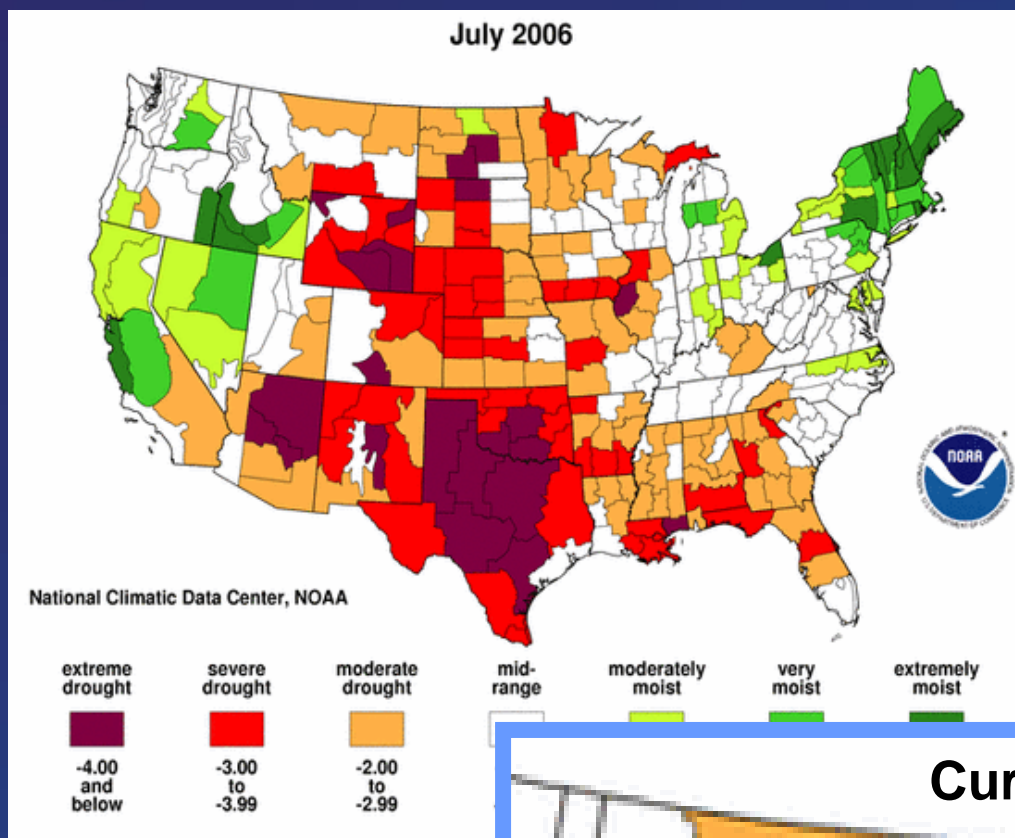
- ‘No Moisture’ at or above 18” level
- Continued drying at the 30” level

6” = 200 cb
12” = 200 cb
18” = 200 cb
30” = 55 cb

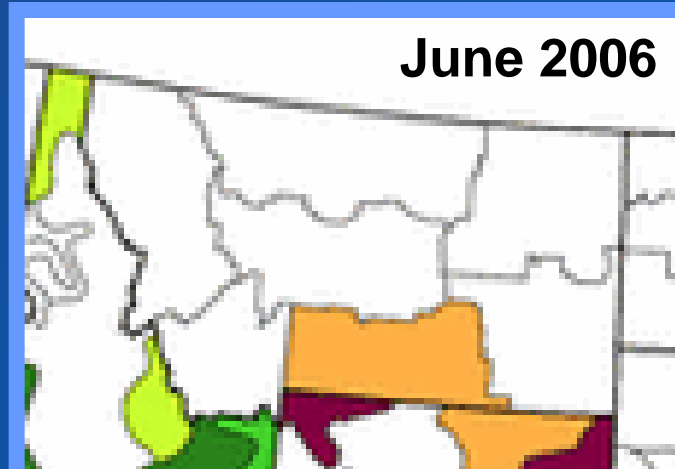
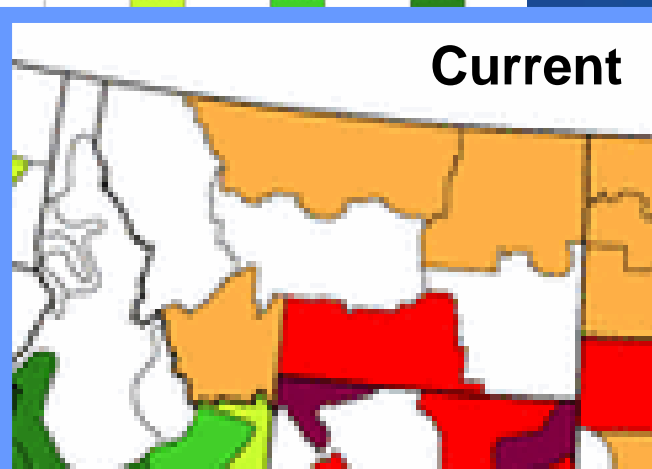


Palmer Hydrological Drought Index

July 2006



- 4 climate divisions dropped a category
 - South central degraded from 'Moderate' to 'Severe' Drought
 - Southwest, north central and northeast dropped from 'Mid-Range' to 'Moderate' Drought
- Three climate divisions hanging on to 'Mid-Range'



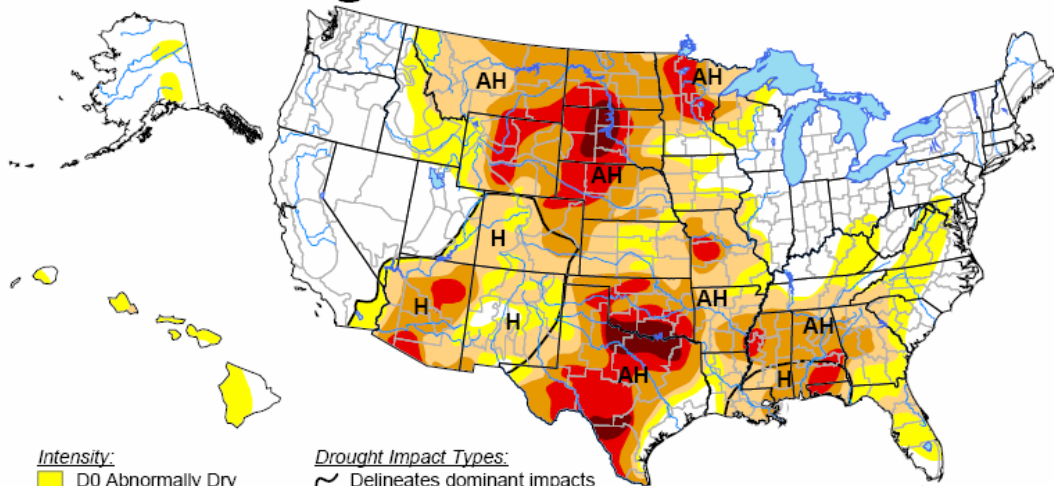


National Drought Monitor

August 15, 2006

U.S. Drought Monitor

August 15, 2006
Valid 8 a.m. EDT



Intensity:

D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional

Drought Impact Types:

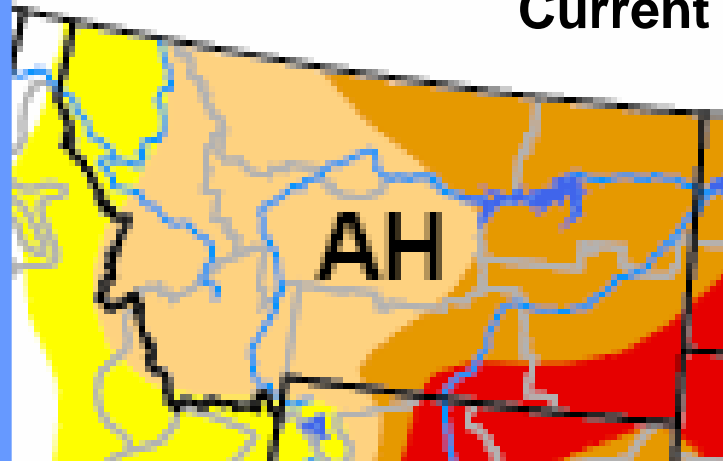
~ Delineates dominant impacts
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See additional information for forecast statements.

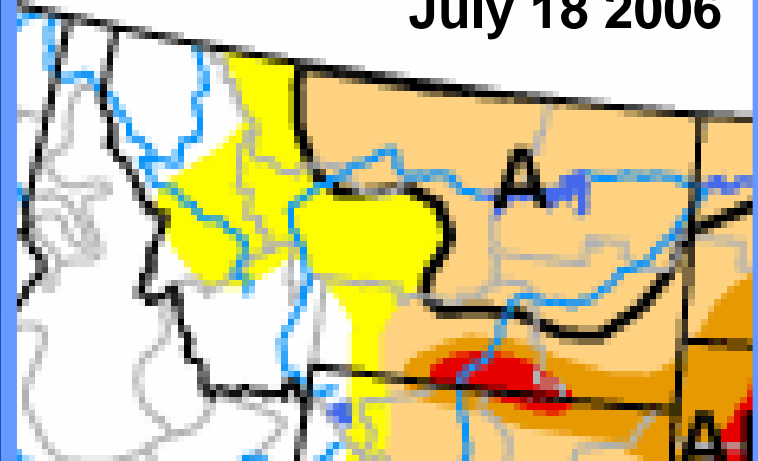
<http://drought.u...>

- Continued expansion of drought categories across Montana
- Eastern Montana 'Severe' to 'Extreme' (D2 and D3)
- West to central Montana 'Moderate' (D1)
- Northwest Montana 'Abnormally Dry' (D0)

Current



July 18 2006

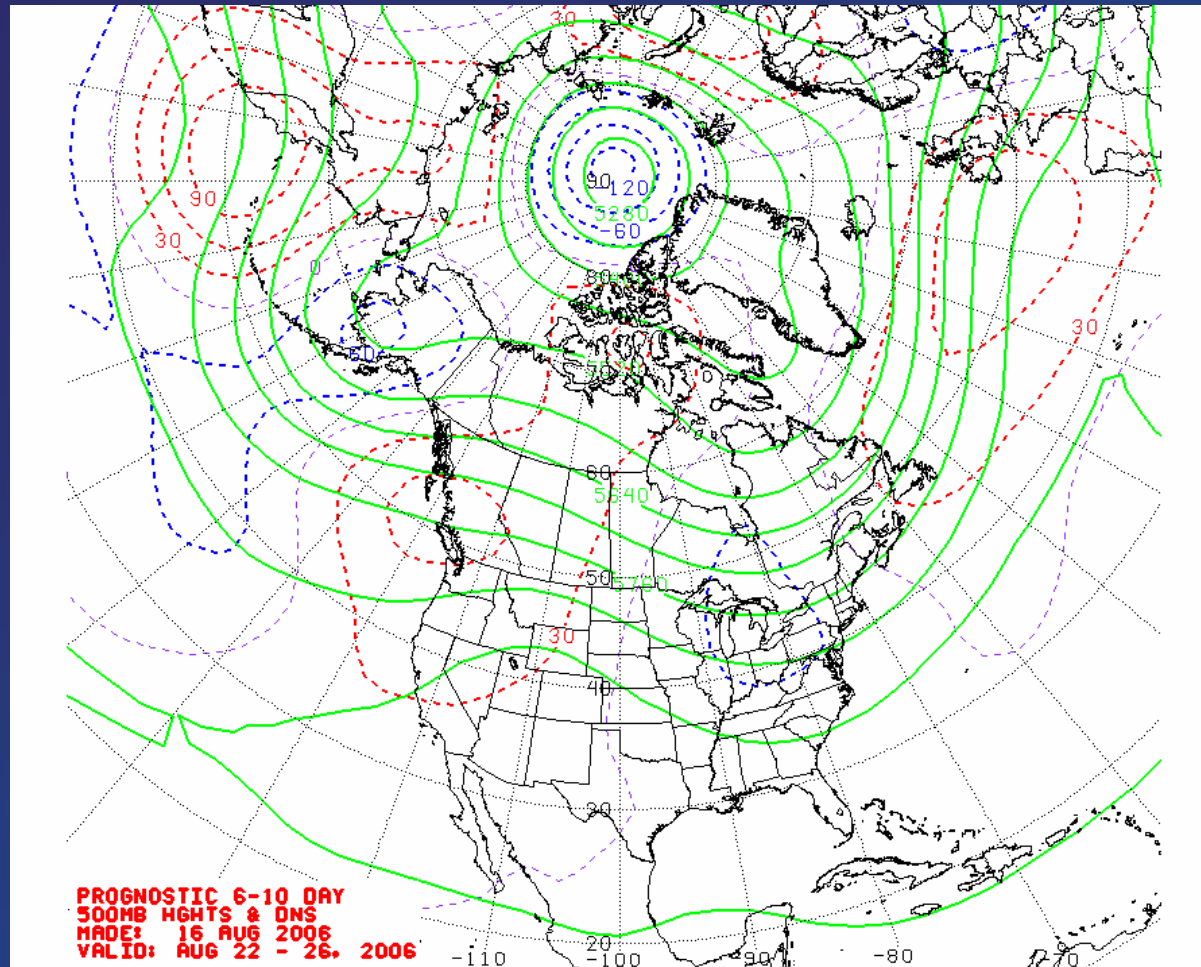




6 to 10 Day Outlook

500mb Heights and Anomalies

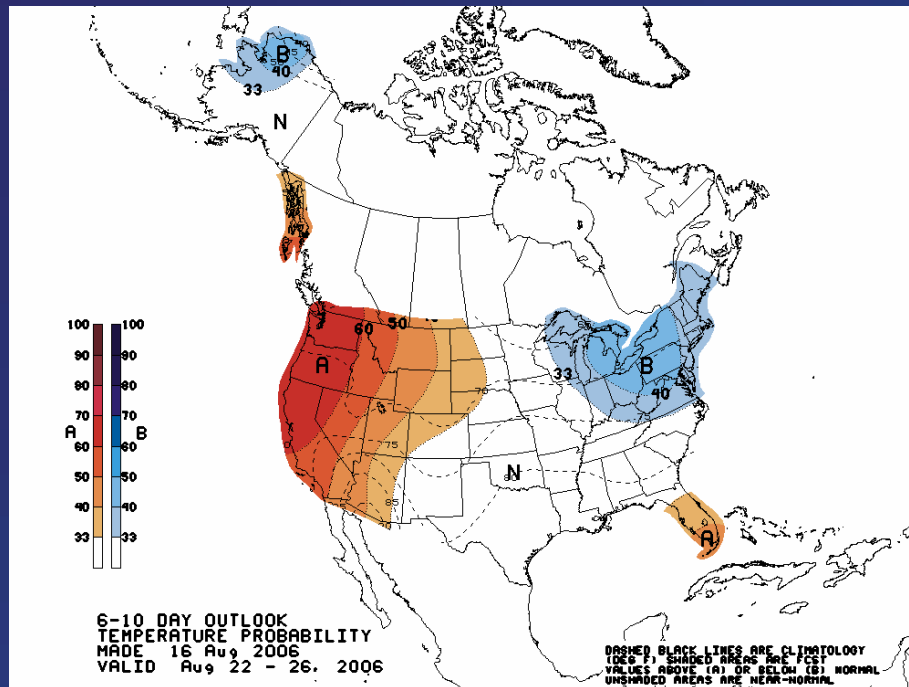
- High pressure ridge rebuilds
- Weak low pressure trough to the west
- West to southwest flow
- Temperatures near to above seasonal normals
 - *Highs for September*
 - Mid 60s to mid 70s
 - *Lows for September*
 - Mid 30s to mid 40s





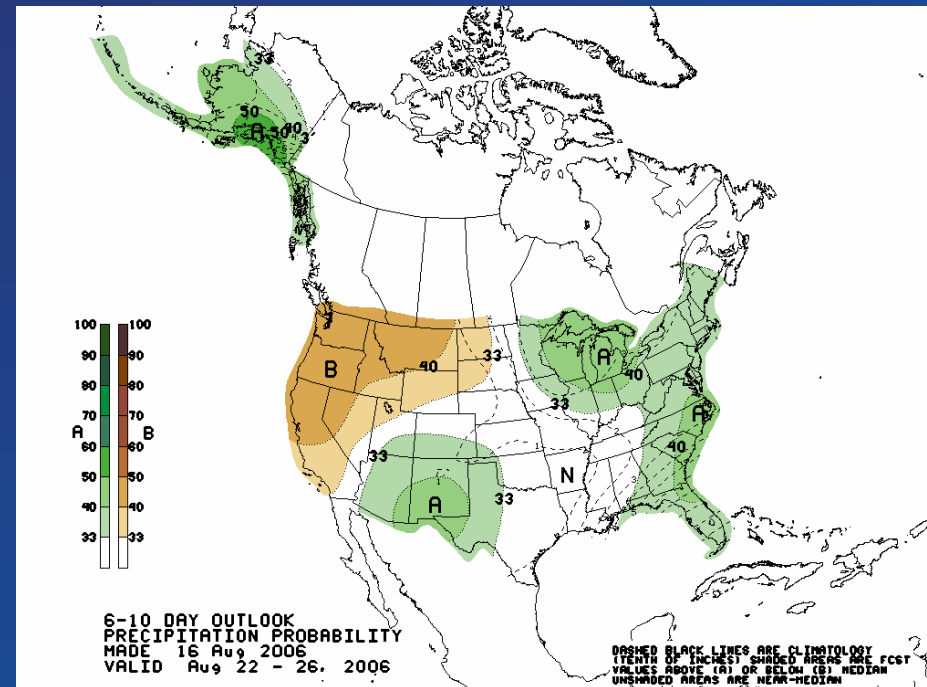
6 to 10 Day Outlook

Temperature



- 40% to 60% chance for above normal temperatures across Montana
 - Best chances in the west

Precipitation

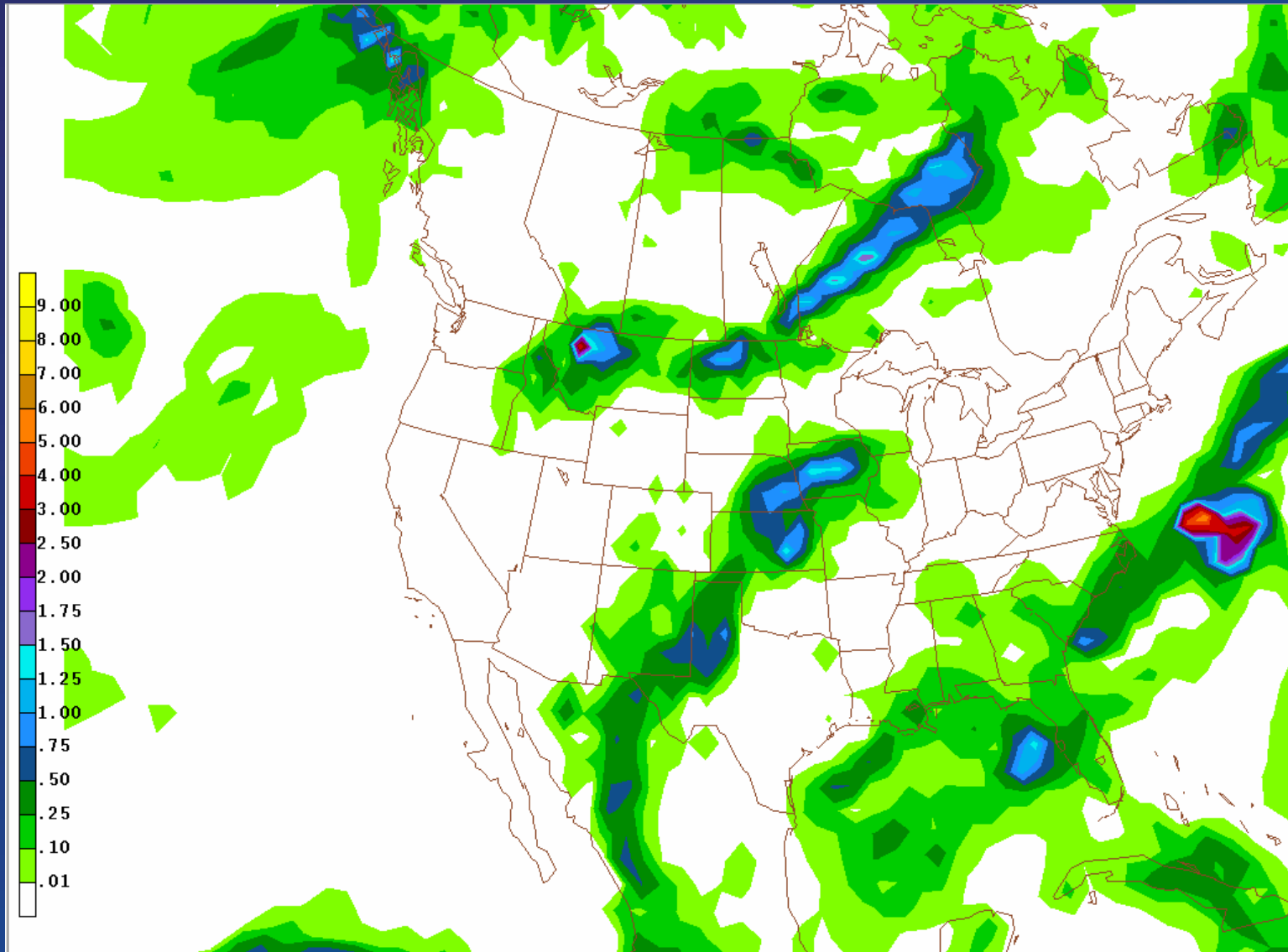


- 33% to 50% chance for below normal precipitation across Montana



24-hour Precipitation Forecast

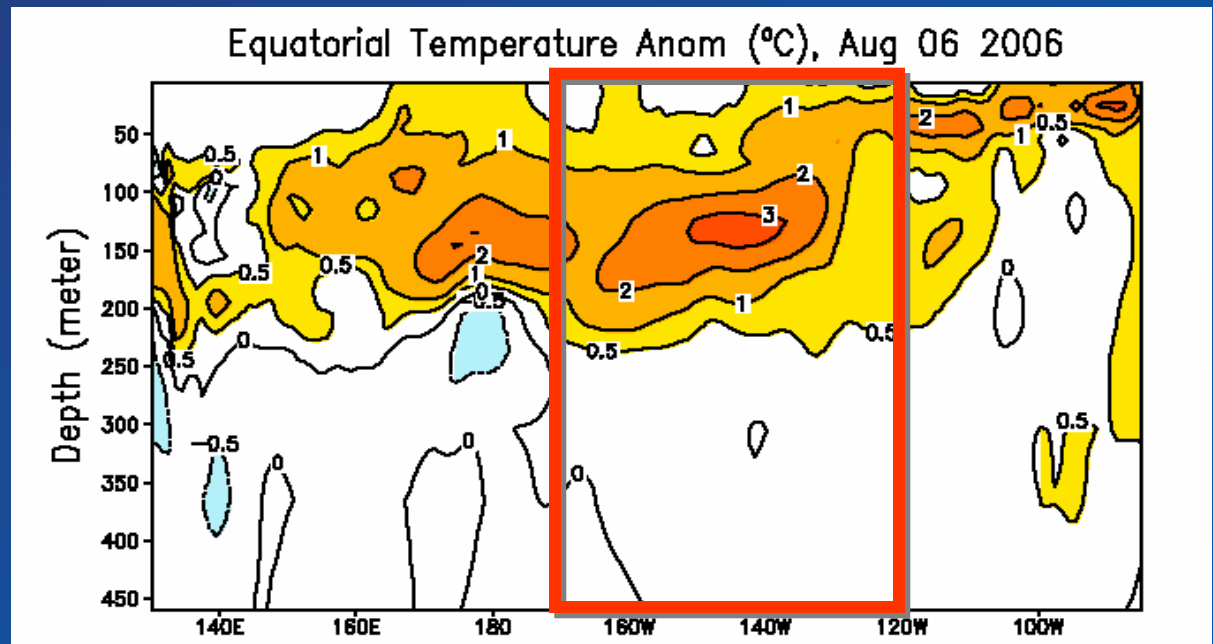
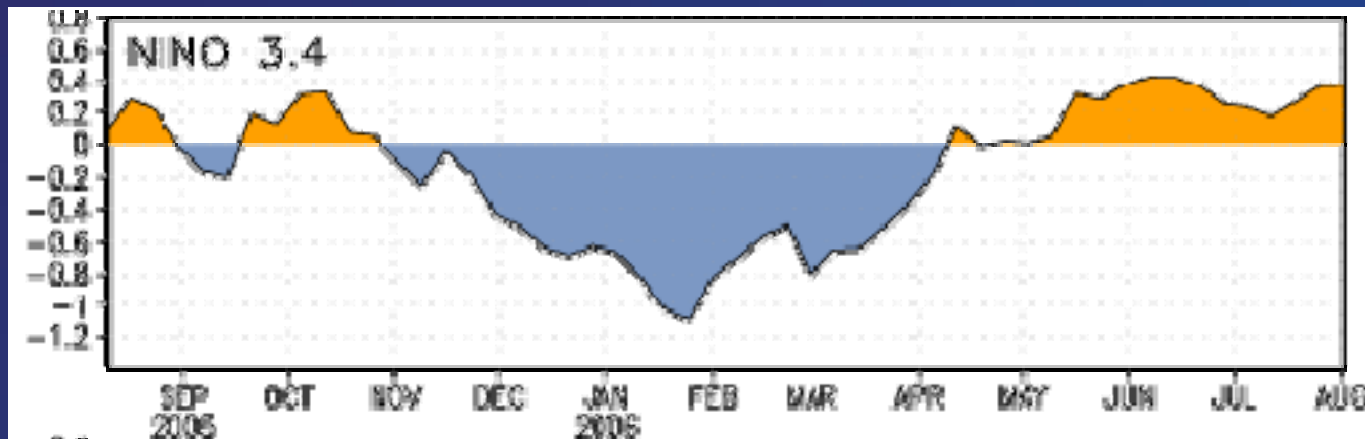
Ending 6 p.m. today





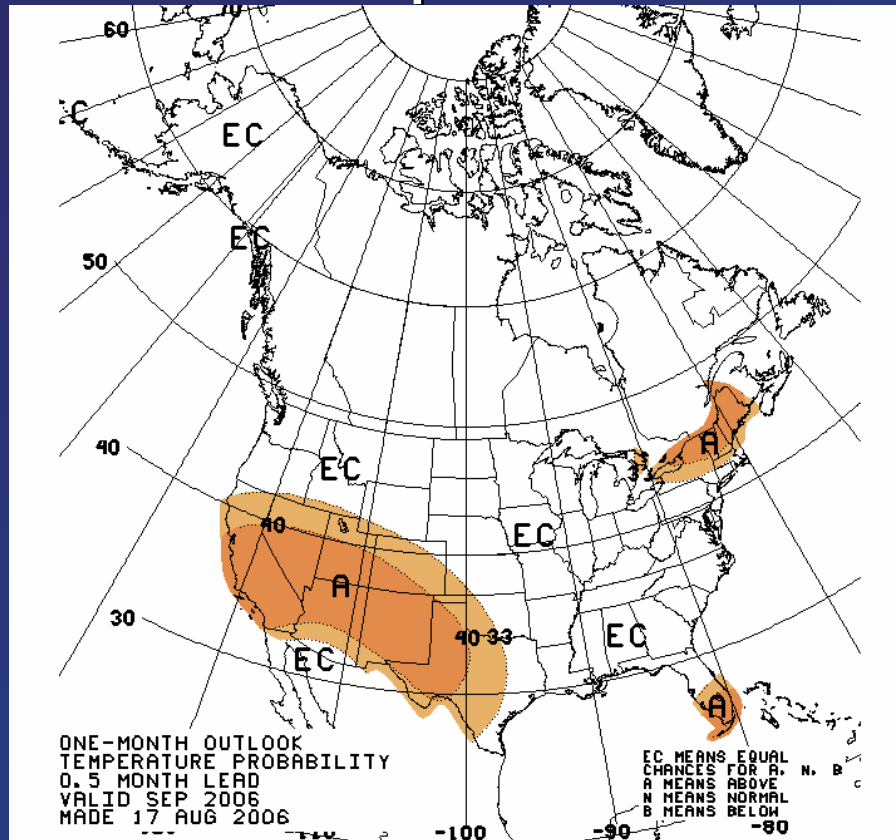
Current Status of El Niño/La Niña

ENSO-neutral conditions expected next one to three months
50% chance weak El Niño conditions develop by end of 2006



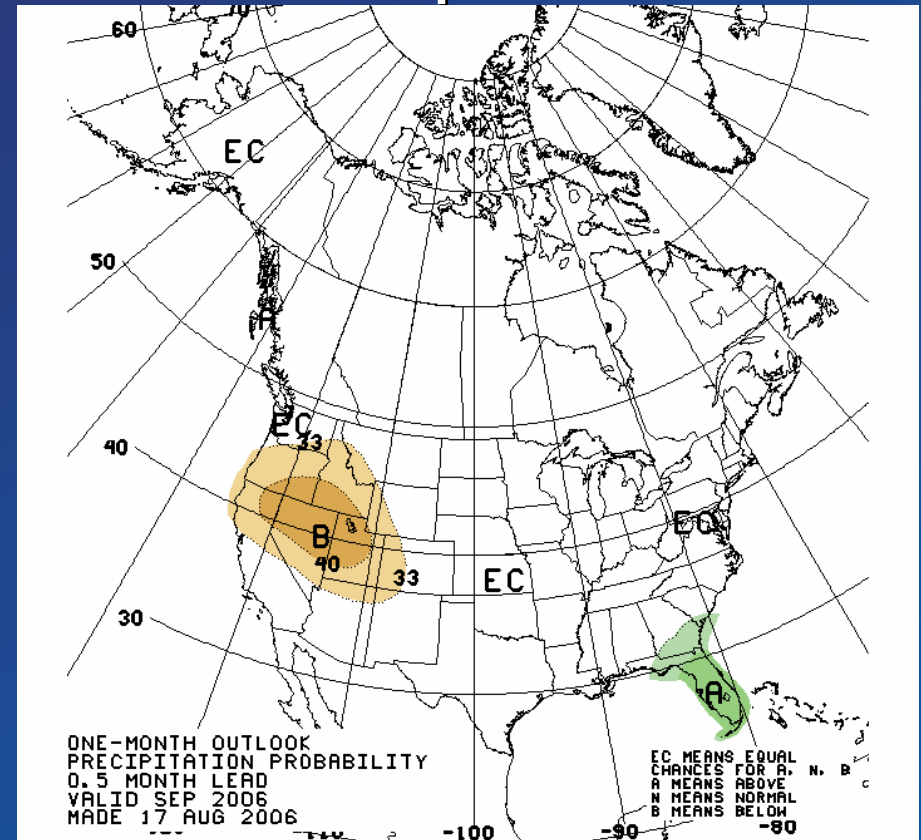
September Outlook

Temperature



- All of Montana – No forecast skill
 - *Equal chances for above... below or near normal temperatures*

Precipitation

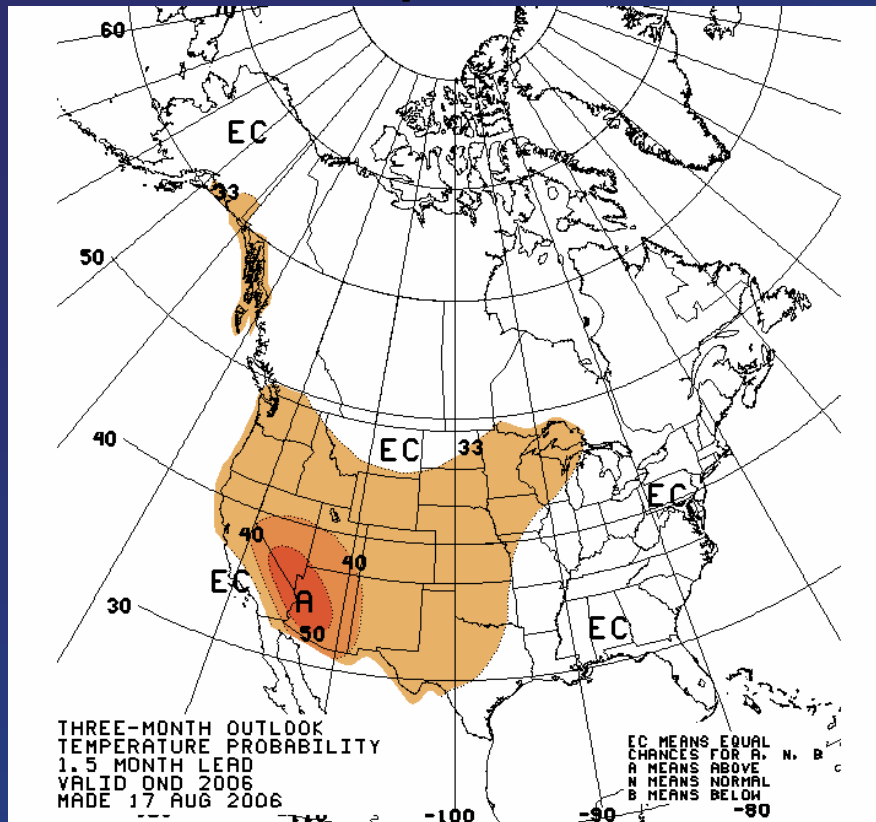


- Southwest – 33% to 40% chance of below normal precipitation
- Remainder of Montana – No forecast skill
 - *Equal chances of above... below or near normal precipitation*



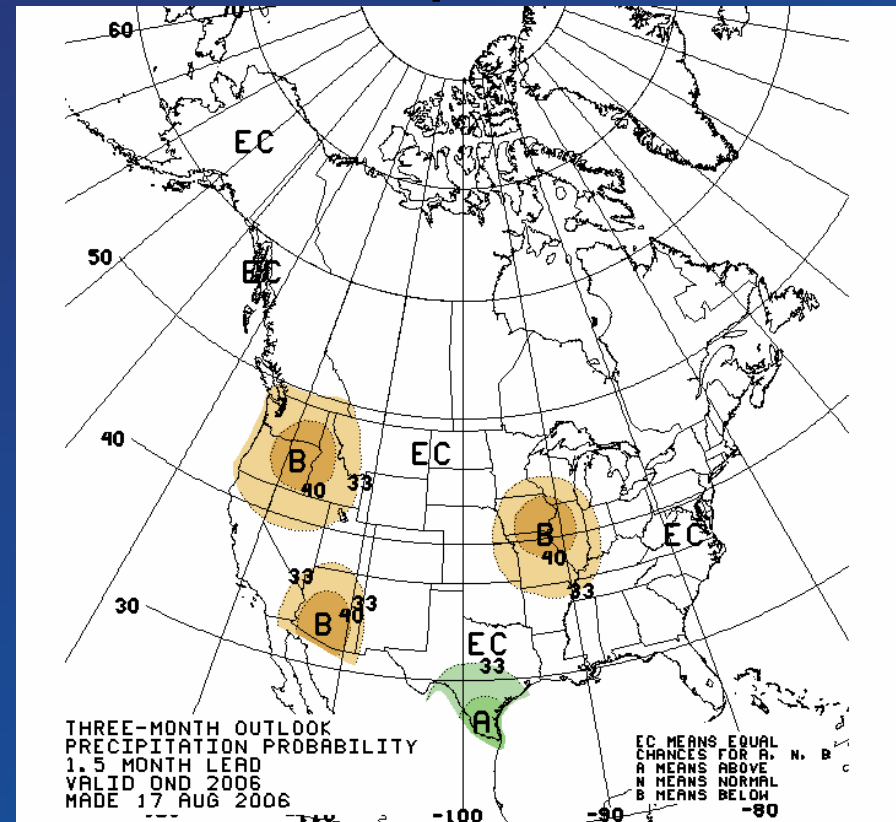
October – December Outlook

Temperature



- Southwest and extreme south – 33% to 40% chance of above normal temperatures
- Remainder of Montana – No forecast skill
 - Equal chances for above... below or near normal temperatures

Precipitation

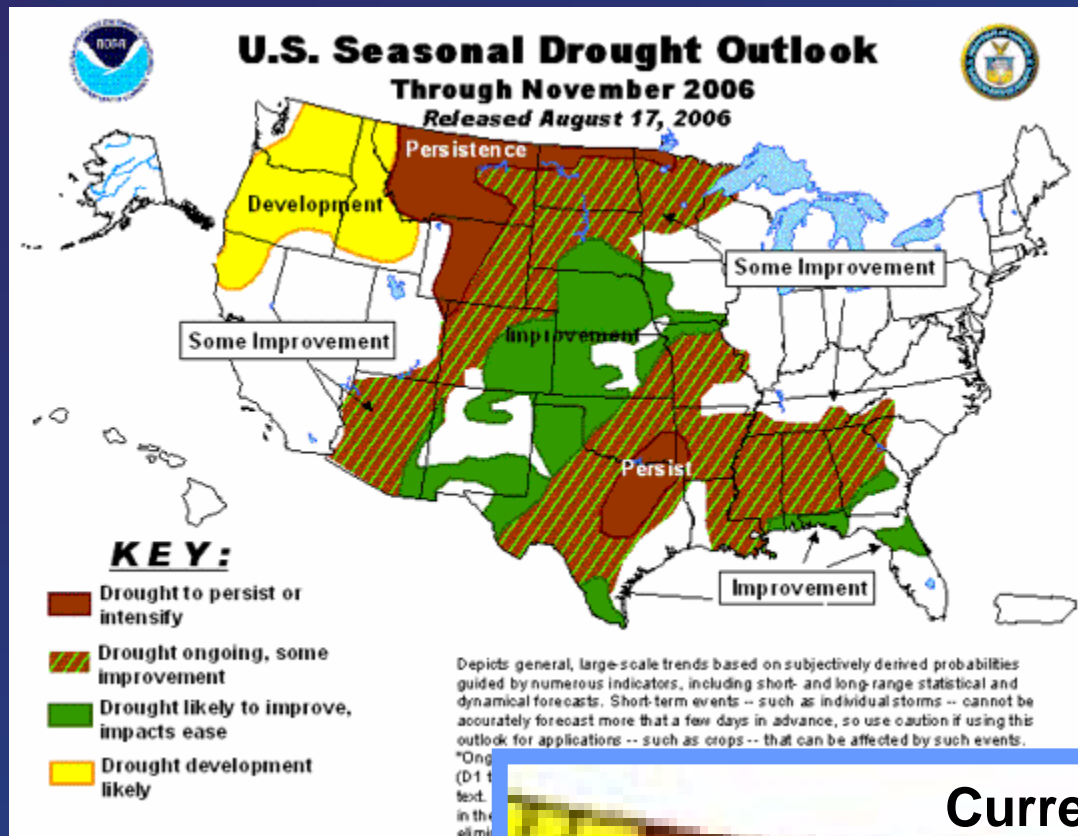


- West – 33% to 40% chance of above normal precipitation
- Remainder of Montana – No forecast skill
 - Equal chances for above... below or near normal precipitation

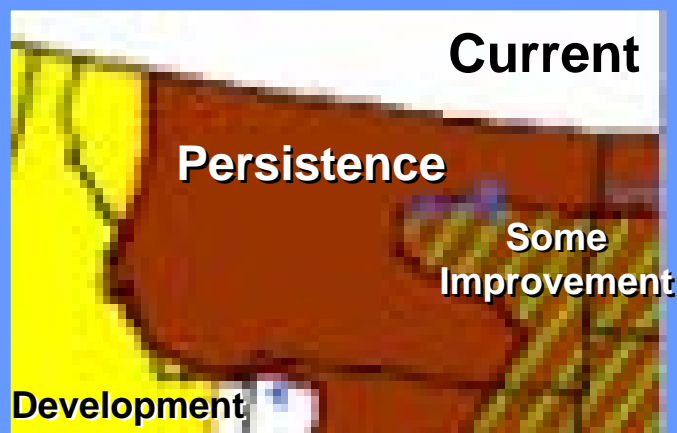


Drought Outlook through November

Issued August 17, 2006



- Persistence expected over most of Montana
- Some improvement expected southeast
- Development expected northwest





In Summary...

- July and early August brought well below normal precipitation to Montana
- Water year precipitation still near normal to above normal over most of state
 - *Areas below normal slowly expanding*
- Crop Year moisture lacking
 - *Most of state below to well below normal*
- July and early August hot and dry across all of Montana
 - *Drought conditions worsened statewide*
- Precipitation in forecast?
 - *Current storm should bring 1 to 2 inches of precipitation to some areas of Montana*



weather.gov

weather.gov/billings

weather.gov/glasgow

weather.gov/missoula

weather.gov/greatfalls



Tornado near Cut Bank – June 13, 2006